ADELAB SCIENTIFIC
36 Holland Street
Thebarton SA 5031
Ph 08 8234 7955
Fax 08 8234 7897
Email: info@adelab.com.au
Web: www.adelab.com.au

Conductivity/Total Dissolved Solids/Salinity

A measure of the impurities in water supplies for domestic and industrial use.

Tester:

1. ECTestr 11+; 11
2. TDSTestr® 11+; 11
3. SaltTestr® 11
4. EcoTestr EC High; Low
5. EcoTestr TDS High; Low
6. EcoTestr Salt

Handheld:

1. CyberScan COND 610
2. CyberScan COND 600
3. CyberScan CON 400
4. CyberScan CON 110
5. CyberScan CON 11
6. COND 6+
7. TDS 6+
8. Salt 6+

Bench:

1. CyberScan CON 6000
2. CON 2700
3. CON 700

"I have used Eutech's handheld meters for environmental monitoring for many years. They work really well"

About Conductivity, TDS & Salinity Measurement

Introduction to Conductivity, TDS and Salinity

Electrical Conductivity (EC) meters measure the capacity of ions in an aqueous solution to carry electrical current. As the ranges in aqueous solutions are usually small, the basic units of measurements are milliSiemens/cm (mS/cm) and microSiemens/cm (µS/cm).

Solution	Conductivity
Absolute pure water	0.055 µS/cm
Power plant boiler water	1.0 µS/cm
Good city water	50 µS/cm
Ocean water	53 mS/cm
Distilled water	0.5 µS/cm
Deionised water	0.1 - 10 µS/cm
Demineralised water	0 - 80 µS/cm
Drinking water	0.5 - 1 mS/cm
Wastewater	0.9 - 9 mS/cm
Seawater	53 mS/cm
10 % NaOH	355 mS/cm
10 % H_2SO_4	432 mS/cm
31 % HNO_3	865 mS/cm

Conductivity is used widely to determine the level of impurities in water supplies for domestic consumption as well as industrial use. Industries that employ this method include the chemical, semi-conductor, power generation, hospitals, textile, iron and steel, food and beverage, mining, electroplating, pulp and paper, petroleum and marine industries.

Specific applications include chemical streams, demineraliser output, reverse osmosis, stream boilers, condensate return, waste streams, boiler blowdown, cooling towers, desalinisation, laboratory analysis, fruit peeling and salinity level detection in oceanography.

Eutech offers a wide range of conductivity meters for these various applications. Models include the ECTestr series, COND 6+, CyberScan handheld CON 11 and CON 110, CyberScan waterproof CON 400 and CON 410 and CyberScan bench meters CON 510, CON 1500, CON 6000 as well as the handheld multi-parameters PC 10, PC 300, PC 510 and colour touchscreen research-grade bench series PC 6000, PC 6500 and PCD 6500.

The total TDS is a mass estimate and is dependent on the mix of chemical species as well as the concentration while conductivity is only dependent on the concentration of chemical species. Some applications require the measurement of Total Dissolved Solids (TDS) in mg/L, parts per million (ppm) or parts per thousand (ppt). The TDS concentration can be obtained by multiplying the conductivity value with a factor which is empirically determined.

Eutech offers meters that allow the direct reading of TDS values. These include the TDSTestr® series, TDS 6+, CyberScan standard handheld CON 11, CON 110 and waterproof handheld CON 410. Bench meters for advanced level laboratory research are the CyberScan CON 510, CON 1500 and colour touchscreen research-grade CON 6000.

Salinity measurements are common in industries like agriculture, aquaculture, hydroponics, food, pools and spas where it is necessary to monitor the salt level constantly. The values are usually read in parts per thousand (ppt) or % (1 ppt = 1 gram per litre).

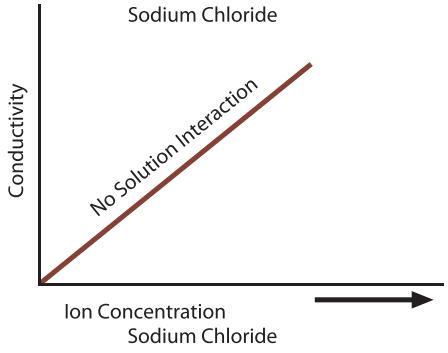
The Eutech salinity pocket testers SaltTestr® series are specially developed to provide direct readings in these applications.

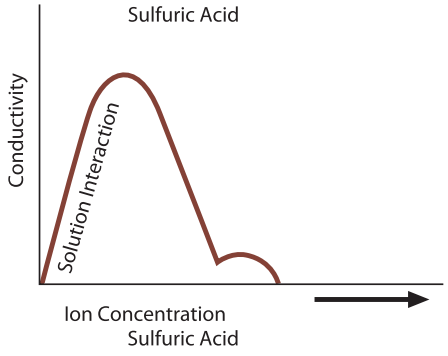
The Principle of Conductivity Measurement

The principle by which instruments measure conductivity is simple – two plates are placed in the sample, a potential is applied across the plates (normally a sine wave voltage), and the current is measured. Conductivity (G), the inverse of Resistivity (R) is determined from the voltage and current values according to Ohm's law.

G = I/R = I (amps) / E (volts)

Since the charge on ions in solution facilitates the conductance of electrical current, the conductivity of a solution is proportional to its ion concentration. In some situations, however, conductivity may not correlate directly to concentration. The graphs below illustrate the relationship between conductivity and ion concentration for two common solutions. Notice that the graph is linear for sodium chloride solution, but not for highly concentrated sulfuric acid. Ionic interactions can alter the linear relationship between conductivity and concentration in some highly concentrated solutions.





Units of Measurement

The basic unit of conductivity is the Siemens (S), formerly called the mho. Since cell geometry affects conductivity values, standardized measurements are expressed in specific conductivity units (S/cm) to compensate for variations in electrode dimensions. Specific conductivity (C) is simply the product of measured conductivity (G) and the electrode cell constant (L/A), where L is the length of the column of liquid between the electrode and A is the area of the electrodes.

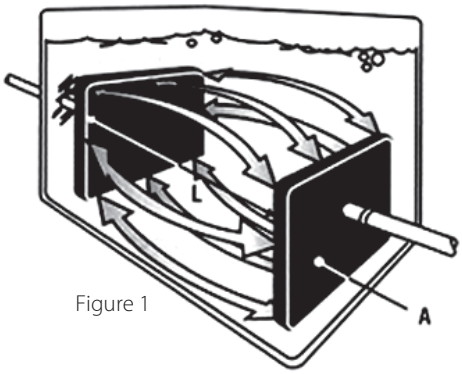


Figure 1

$$C = G \times (L/A)$$

If the cell constant is 1 cm^{-1}, the specific conductivity is the same as the measured conductivity of the solution. Although electrode shapes vary, an electrode can always be represented by an equivalent theoretical cell.

Conductivity Temperature Compensation

Conductivity measurements are temperature dependent. The degree to which temperature affects conductivity varies from solution to solution and can be calculated using the following formula:

$$Gt = Gt_{std} \{1 + \alpha(T-T_{std})\}$$

where:
Gt = Conductivity at measured Temperature T in °C;
Gt_{std} = Conductivity at Reference (Normalisation) Temperature T_{std} in °C;
α = Temperature Coefficient of solution at T_{std} in °C;
T_{std} = Reference or Normalisation Temperature in °C

All meters have either fixed or adjustable automatic temperature compensation referenced to a standard temperature – usually 25 °C. Most meters with fixed temperature compensation use α of 2 % per °C (the approximate α of NaCl solutions at 25 °C). Meters with adjustable temperature compensation let you to adjust the α to more closely match the α of your measured solution.

Conductivity Meter Calibration and Cell Maintenance

Conductivity meters and cells should be calibrated to a standard solution before using. When selecting a standard, choose one that has the approximate conductivity of the solution to be measured.

A polarized or fouled electrode must be cleaned to renew the active surface of the cell. In most situations, hot water with a mild liquid detergent is an effective cleanser. Acetone easily cleans most organic matter, and chlorine solutions will remove algae, bacteria or molds. To prevent cell damage, abrasives or sharp objects should not be used to clean an electrode. A cotton bud works well for cleaning but care must be taken not to widen the distance of cell.

Conductivity Cells

Most conductivity meters have a 2-cell electrode available in either dip or flow-through styles. The electrode surface is usually platinum, titanium, gold-plated nickel, or graphite. The 4-cell electrode uses a reference voltage to compensate for any polarization or fouling of the electrode plates. The reference voltage ensures that measurements indicate actual conductivity independent of electrode condition, resulting in higher accuracy for measuring pure water.

The Eutech EC620165 4-cell conductivity electrode (cell constant K=1.0) with in-built ATC and DIN connector is available for use with the bench meters CON 1500, PC 6000, PC 6500 and PCD 6500. ECCONSEN9203J 4-cell conductivity electrode with ATC and 3 m cable is available for COND 600, COND 610, PCD 650 and CD 650 handheld meters.

Important Features to Consider in a Conductivity Meter

- **Auto-Ranging**
  Meter automatically selects the appropriate range for measurement. There is no need to change the dial, multiply values on the display, or turn the potentiometer.

- **Temperature Compensation**
  A cell with built-in temperature sensor allows the meter to make adjustments to the conductivity or TDS readings based on changes in solution temperature.

- **TDS Conversion Factor**
  When a solution does not have a similar ionic content to natural water or salt water, then a TDS conversion factor is needed to automatically adjust the readings.

- **Adjustable Temperature Coefficients**
  The TDS of certain samples, such as alcohols and pure water, are affected by changes in temperature. An adjustable temperature coefficient allows the user to compensate for temperature changes on the solution being measured.

- **Adjustable Cell Constant**
  Adjusts the reading on the display to reflect use of a cell with a constant other than k=1.0 cm^{-1}.

Eutech's wide range of conductivity meters incorporates these features for consistent, accurate and reliable measurements.

<< Photo Development

>> Industrial Boilers

ECTestr 11+ ; ECTestr 11 ; TDSTestr® 11+ ; TDSTestr® 11

Conductivity/°C/°F — Total Dissolved Solids/°C/°F

Combining the ranges of three testers into one, the Eutech multi-range ECTestr 11 Series and TDSTestr 11 Series now measure a wider conductivity range from pure water to waste water. User-friendly features such as simultaneous temperature display, auto-ranging option, adjustable TDS factor and automatic temperature compensation make conductivity and TDS measurements on-the-go quick and easy!

User-replaceable sensor

Unique cup-style design of '+' series allows you to hold small volumes of sample

** For ECTestr 11+ & TDSTestr 11+*

Accurate & Reliable

- ECTestr 11 series measures up to 20.00mS; TDSTestr 11 series measures up to 20.00ppt
- Up to 3-point calibration for higher accuracy – choose auto-calibration for quick, effortless calibration!
- Selectable TDS factor (0.4 to 1.00)*
- ±1 % full scale accuracy

** For TDSTestr 11+*

Long Lasting

- Sensor elements made with industrial-grade SS316 stainless steel ensures superior chemical durability. 11+ models come with unique cup-type sensors, made with Valox® casing to protect against harsh samples
- Reduced operating cost – use tester body again and again with user-replaceable sensor
- Rugged and waterproof to IP67 standards. So light, it floats!

User-Friendly

- Auto-ranging option for convenient measurements in wide-range samples.
- Toggle between °C / °F easily with the press of a button
- Non-volatile memory retains calibration settings even when batteries run out – no need to recalibrate each time you change batteries

ATC | AUTO-CAL | 2 Year Meter Warranty | IP 67 | CE

Applications

• Water & wastewater treatment • Boiler blow-down • Electroplating rinse tanks • Drinking water • Hydroponics • Printing Industry • Aquaculture • Aquariums & fish farms • Swimming pools • Others

SaltTestr® 11

Salinity/°C/°F

Eutech's latest SaltTestr 11 now comes with a new temperature display in °C and °F for easy reference during your salinity testing. Waterproof to IP67 standard, the SaltTestr 11 assures high accuracy readings even in harsh field conditions, from aquaculture settings to food production applications.

Unlike other conventional testers, the SaltTestr 11 offers ±1 % full scale accuracy

IP67 waterproof casing – so light it floats!

Sensor element made from industrial grade SS316 stainless steel type to protect against harsh samples

User-replaceable sensor

More User-Friendly
- Direct temperature readout in °C and °F
- Large screen display
- Battery-level indicator
- Non-volatile memory

High Accuracy
- ±1 % full scale accuracy
- Automatic Temperature Compensation (ATC)

More Savings
- Replaceable sensors
- Advanced power-conserving design

Applications

Routine Testing: *For quick, accurate Salinity measurements in laboratories, field and schools.*

Water Quality Testing: *Ideal for salt levels in brines, pool water, aquaculture systems, aquariums (marine fish) and fish ponds (koi), food processing and healthcare industries.*

EcoTestr EC High & EC Low ; EcoTestr TDS High & TDS Low ; EcoTestr Salt

Conductivity | Total Dissolved Solids | Salinity

The Eutech EcoTestr conductivity, TDS and Salinity series come with rugged, sturdy stainless steel pin sensors, giving you quick, reliable measurements in a wide range of applications. Ideal for use in hydroponics gardening, fish-farming, pools, electroplating and other water/ wastewater applications.

Click-lock battery compartment – simply lift and remove cover to replace batteries. No additional tools required

Tactile switch keypad lasts longer than ordinary keypad

Large, upright LCD with parameter display and battery level indicator

Easy push-button calibration. Microprocessor-powered tester requires no screwdriver for calibration

Non-volatile memory retains tester settings even when batteries run out

Applications

• Water & wastewater treatment
• Environmental monitoring • Education
• Hydroponics • Agriculture • Aquaculture & aquariums • Pools & spas • Food & beverage manufacturing • Cooling towers
• Electroplating • Printing
• Photo-development & more!

- Up to ±1% full scale accuracy
- Single-point, auto-calibration – quick, easy calibrations at the press of a button
- Manual calibration option for better accuracy with near-to-sample calibrations
- EcoTestr TDS series features adjustable TDS factor from 0.4 to 1.0

ATC CE

Conductivity/ TDS/Salinity Pocket Testers Specifications

Models		Waterproof Large Dual-Display Pocket Testers					EcoTestrs				
		ECTestr 11+	ECTestr 11	TDSTestr 11+	TDSTestr 11	SaltTestr 11	EC High	EC Low	TDS High	TDS Low	Salt
Measuring Parameter		Conductivity / °C / °F		TDS / °C / °F		Salinity / °C / °F	Conductivity		TDS		Salinity
Highlights		Multi-range	Dual-range	Multi-range	Dual-range	Dual-display	Economical, large, upright display				
Conductivity	Range	.. to 200.0 µS .. to 2000 µS .. to 20.00 mS	.. to 2000 µS .. to 20.00 mS	–		–	.. to 19.90 mS	.. to 1990 µS	–		
	Resolution	0.1 µS 1 µS 0.01 mS	10 µS 0.10 mS	–		–	0.1 mS	10 µS	–		
	Accuracy	±1 % full scale		–		–	±1 % full scale (±2 % above 10 mS)	±1 % full scale	–		
TDS	Range	–		.. to 100.0 ppm * .. to 1000 ppm * .. to 10.00 ppt (depending on TDS factor)	.. to 1000 ppm * .. to 10.00 ppt	–	–		.. to 10.00 ppt	.. to 1990 ppm	–
	Resolution	–		0.1 ppm 1 ppm 0.01 ppt	10 ppm 0.10 ppt	–	–		0.1 ppt	10 ppm	–
	Accuracy	–		±1 % full scale		–	–		±1 % full scale (±2 % above 5 ppt)	±1 % full scale	–
	Factor	–		0.40 to 1.00 (selectable)		–	–		0.50 to 1.00 (selectable)	0.4 to 1.0 (selectable)	–
Cal. Points		3 auto or 3 manual	2 auto or 2 manual	3 manual	2 manual	1 manual					
Salinity	Range	–				.. to 10.00 ppt	–				.. to 10.0 ppt
	Resolution	–				0.10 ppt	–				0.1 ppt
	Accuracy	–				±1 % full scale	–				±1 % full scale (±2 % above 5 ppt)
	Cal. Points	–				1	–				1
Temperature	Range	0 to 50.0 °C / 32.0 to 122.0 °F					–				
	Resolution	0.1 °C / 0.1 °F					–				
	Accuracy	±0.5 °C / ±0.9 °F + 1 LSD					–				
	Calibration Window	±5.0 °C / ±9.0 °F				±0.5 °C / ±0.9 °F	–				
Meter Features	Temperature Compensation	ATC (0 to 50 °C / 32 to 122 °F)									
	Sensor Type	Cup	Dip	Cup	Dip						
	Replaceable Sensor	Yes					–				
	Temperature Coefficient	2 % per °C, fixed									
	Normalization Temperature	25.0 °C, fixed									
	Non-Volatile Memory	Yes									
	IP67	Yes									
	Operating Temperature	0 to 50 °C									
	Auto-Off	8.5 mins after last key pressed									
	LCD Display	Custom dual-display (2.1 x 2.7 cm)					3½ digit single display				
	Power	4 x 1.5 V 'A76' micro alkaline batteries (included)									
	Battery Life	> 150 hrs									
Dimensions (LxWxH); Weight	Tester	16.5 x 3.8 cm ; 90 g					16.3 x 4.5 cm ; 90 g				
	Boxed	18.5 x 6.5 x 5 cm ; 200 g									

*• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: miliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand) * Max. 200.0 ppm and 2000 ppm based on TDS factor 1.0*

Conductivity/TDS/Salinity Pocket Testers

Item	Order Code	Part No.	Parameters				Sensors		Accessories	
			Conductivity	TDS	Salinity	Temperature	Cup Type Sensor	2-Pin Type Sensor	Lanyard	Alkaline Button Cell Batteries
ECTestr 11+	ECTEST11PLS	01X377229	•			•	•		•	•
ECTestr 11	ECTEST11	01X377228	•			•		•	•	•
TDSTestr 11+	TDSTEST11PLS	01X377234		•		•	•		•	•
TDSTestr 11	TDSTEST11	01X377233		•		•		•	•	•
SaltTestr 11	SALTTEST11	01X377232			•	•		•	•	•
EcoTestr EC High	ECOECTESTHIGH	01X477102	•					•		•
EcoTestr EC Low	ECOECTESTLOW	01X477101	•					•		•
EcoTestr TDS High	ECOTDSTESTHIGH	01X477104		•				•		•
EcoTestr TDS Low	ECOTDSTESTLOW	01X477103		•				•		•
EcoTestr Salt	ECOSALTTEST	01X477105			•			•		•

Replacement Sensors & Electrodes

Used With	Description	Order Code	Part No.
ECTestr 11 / TDSTestr 11 / SaltTestr 11	2-pin type replacement sensor	ECTDSSENSOR	01X229713
ECTestr 11+ / TDSTestr 11+	Cup type replacement sensor	ECTDSSENSORPLUS	01X229714

Accessories

Used With	Description	Order Code	Part No.
All testrs	Belt-loop soft carrying case for testr	ECPOUCH01	56X201300
All testrs	Alkaline button cell batteries (50 units per pack)	ECBATT14	01X220401
SaltTestr 11 / EcoTestr Salt	5 ppt NaCl standard solution	ECNACL5PPT	01X211230
SaltTestr 11	25 ppt NaCl standard solution	ECNACL25PPT	01X211231
SaltTestr 11	45 ppt NaCl standard solution	ECNACL45PPT	01X211232
EcoTestr EC High	2764 µS/cm KCl calibration solution, 480 ml bottle	ECCON2764BT	01X211214
EcoTestr EC High	12.88 mS/cm KCl calibration solution, 480 ml bottle	ECCON1288BT	01X211210
EcoTestr EC Low	100 µS/cm KCl calibration solution, 480 ml bottle	ECCON100BT	01X211217
EcoTestr EC Low	1413 µS/cm KCl calibration solution, 480 ml bottle	ECCON1413BT	01X211207
EcoTestr TDS High	3.00 ppt 442 calibration solution, 480 ml bottle	EC4423000BT	01X109101
EcoTestr TDS Low	300 ppm 442 calibration solution, 480 ml bottle	EC442300BT	01X109102
EcoTestr TDS Low	1000 ppm 442 calibration solution, 480 ml bottle	EC4421000BT	01X109104

<< Drinking Water >> Aquaculture
<< Swimming Pools >> Industrial Process Water

CyberScan COND 610 ; CyberScan COND 600

Conductivity/TDS/Salinity/Resistivity/ºC/ºF Conductivity/TDS/ºC/ºF

View readings, calibration and electrode status data all in one screen view – the CyberScan COND 600 series comes with advanced wireless communications technology for seamless data transfer from meter to PC. Meter also accepts and auto-detects 2-cell and 4-cell conductivity probes for pure water to wastewater applications.

Comprehensive multi-data screen display with backlight

High/low alarm limits

User-friendly set-up menu with intuitive soft-key operation

IP67 waterproof

Wireless data transfer

Complimentary Cybercomm software – download data from meter to PC as text or Excel® spreadsheet

Velcro strap for firmer grip

Kit set comes with 4-cell conductivity electrode

Wider Measuring Range
- Up to 5 Conductivity ranges in one meter with convenient auto-ranging capabilities
- ±1 % full scale accuracy at 3-decimal resolution
- Measures pure water with pure water temperature coefficient option (applicable to COND 610 only)

User-Friendly
- Backlit screen with multi-data display – convenient for working in dark areas
- Cal-due alarm for periodic calibration updates

Advanced Data Management
- Meter logs reading automatically within seconds of measurement
- Password protection security for calibration and set-up menus
- GLP-compliant with time and date-stamping
- RS232C through LED*, IrDA wireless communications technology

** RS232C (LED) interface adapter available as separate accessory (order code: 01X344201)*

ATC | MTC | GLP | AUTO-CAL | IrDA | RS232 | 3 Year Meter Warranty | IP67 | CE

Applications

Environmental: *Use to test water quality, monitor health of aquatic ecosystems, survey surface and ground water drinking supplies and to meet EPA regulations.*

Industrial: *Ideal for checking quality of plant water intake and discharge, wastewater and water treatment, recirculating systems and industrial process systems, water conditioning plants and chemical process verification.*

Aquaculture: *Use to monitor water conditions in catfish and shrimp farming, game stocking ponds, ornamental fish tanks and ponds as well as other fish farming applications.*

CyberScan CON 400

Conductivity/TDS/ºC/ºF

Waterproof to IP67, the CyberScan CON 400 delivers lab-accurate results stamped with time and date for GLP-compliant research.

Ergonomic design for that perfect palm fit

Available in complete kit version

Applications

• Water quality testing • Geological and ecological testing • Cooling towers • Boiler water • Printing • Brines • Swimming pools and spas • Agriculture and aquaculture • Aquariums • Hydroponics • Fertilizers • Schools and laboratories

- Conveniently auto-ranging with up to 5-point push-button calibration
- Measures TDS in addition to Conductivity and Temperature in °C and °F
- Adjustable TDS factor for direct derivation of TDS values
- Selectable cell constant
- GLP-compliant
- Selectable automatic/manual temperature compensation
- Hold function freezes readings for easy reference
- Auto-off conserves energy and lengthens battery life-span
- Non-volatile memory holds up to 50 data sets even when you run out of batteries

CyberScan CON 110 ; CyberScan CON 11

Conductivity/TDS/ºC/ºF Conductivity/TDS/ºC

The economy CyberScan CON 110 and 11 are cost-effective, easy to use and self-diagnostic for easy trouble-shooting. Meters are uniquely designed to fit your palm perfectly for effortless one-hand operation.

Complimentary CyberComm Data Acquisition software

Direct data printout via RS232C

Adjustable electrode holder

- Selectable automatic and manual calibration options
- Full-range accuracy with up to 5-point push-button calibration
- More accurate measurements with user-customisable options for normalisation temperature, TDS factor and temperature coefficient
- Non-volatile memory holds up to 50 data sets. Meter settings remain even when you run out of batteries
- Hold function freezes readings for easy reference
- Auto-off conserves energy and lengthens battery life-span
- Direct data transfer via RS232C output – auto data-logging to PC with CyberComm DAS

Expanded Features of CyberScan CON 110

- Convenient data transfer to a printer or PC with RS232C output
- One-glance monitoring of electrode performance with electrode data display
- Expanded memory holds up to 100 data sets

ATC | MTC | AUTO-CAL | RS232 | 3 Year Meter Warranty | IP 54 | CE

Applications

General: *Monitor dissolved solids or Conductivity levels quickly and easily in laboratories, field, schools and educational environments.*

Industrial: *Use for testing pollution control, water treatment, and water hardness. Also useful for checking cooling towers, boiler water, fountain solutions in printing operations, brines, swimming pools, whirlpools and rinse water.*

Agricultural: *Use for checking aquariums, fish farms, hydroponics, and fertilizer/ chemical concentrations.*

COND 6+ ; TDS 6+

Conductivity/ºC TDS/ºC

Sturdy and economical – the Eutech COND 6+ and Eutech TDS 6+ are no-frills handhelds perfect for basic water testing needs. The meters are rugged, sturdy and come with protective rubber boots and hinges that conveniently double up as benchtop stands.

Reader-friendly screen display

Splashproof keypad

Convenient benchtop stand

Rubber boot protects against knocks and hits

IP54-rated housing protects against dust and water splashes

Conductivity electrode with built-in ATC and designed for minimal bubble entrapment

Applications

Routine Testing: *For quick, accurate Conductivity or TDS checks in laboratories, field and schools.*

Environmental/Agricultural: *Useful in nutrient and fertilizer checks in hydroponics and agricultural industries.*

Water Quality Testing: *For analysing water, hard water, untreated water, industrial and rinse water, drinking water, effluent water, pool water and incoming process water. Ideal for all types of quality assurance, printing industries and water quality testing.*

- Up to 5-point push-button calibration with auto-buffer recognition – quick, easy calibration with no mistakes
- ±1 % full scale accuracy
- Selectable automatic/manual temperature compensation
- Auto-ranging for Conductivity measurements
- Adjustable TDS factor for direct derivation of values
- Non-volatile memory holds meter settings, even when batteries run out
- Easy troubleshooting with comprehensive self-diagnostic messages

Salt 6+

Salinity/°C

With sturdy rubber boot, splash-proof keypad, large custom LCD and rugged carrying case, salinity testing on the go is a breeze with the Eutech Salt 6+.

- Measures in ppt and %
- Quick and easy push-button calibration
- User customisation for normalisation temperature and temperature coefficient
- Electrode with built-in ATC designed for minimal air bubble entrapment during measurement
- Rugged all-in-one meter kit available
- Other features include: HOLD function, auto-off, self-diagnostics

Applications

Routine Testing: *For quick, accurate Salinity measurements in laboratories, field and schools.*

Water Quality Testing: *Ideal for salt levels in brines, pool water, aquaculture systems, aquariums (marine fish) and fish ponds (koi), food processing and healthcare industries.*

Models		CyberScan Dual-Display					Eutech Single-Display		
		COND 610	COND 600	CON 400	CON 110	CON 11	COND 6+	TDS 6+	Salt 6+
Conductivity/ TDS/Salinity Handheld Meters Specifications									
Measuring Parameter		Conductivity / TDS / Salinity / Resistivity / °C / °F	Conductivity / TDS / °C / °F		Conductivity / TDS / °C / °F	Conductivity / TDS / °C	Conductivity / °C	TDS / °C	Salinity / °C / °F
Highlights		Waterproof, GLP, RS232C, IrDA, linear & pure TC	Waterproof, GLP, RS232C, IrDA, linear TC	Waterproof, GLP	Expanded memory, RS232C output	Standard handheld	Economical CON measurement	Economical TDS measurement	High accuracy over a wide Salinity range
Conductivity	Range	.. to 2.000 µS 2.000 to 300.0 µS 300.0 µS to 4.000 mS 4.000 to 40.00 mS 40.00 to 500.0 mS	.. to 2.000 µS 2.000 to 300.0 µS 300.0 µS to 4.000 mS 4.000 to 40.00 mS 40.00 to 200.0 mS	.. to 19.99 µS 19.9 to 199.9 µS 199 to 1999 µS 2.00 to 19.99 mS 20.0 to 199.9 mS			–		
	Resolution	0.01 µS / 0.1 µS / 0.001 mS / 0.01 mS / 0.1 mS		0.05 % full scale					–
	Accuracy	±1 % full scale + 1 LSD							–
TDS	Range (Depending On TDS Factor)	.. to 2.000 ppm 2.000 to 300.0 ppm 300.0 ppm to 4.000 ppt 4.000 to 40.00 ppt 40.00 to 500.0 ppt	.. to 2.000 ppm 2.000 to 300.0 ppm 300.0 ppm to 4.000 ppt 4.000 to 40.00 ppt 40.00 to 200.0 ppt	.. to 10.00 ppm ** 10.0 to 100.0 ppm 100 to 1000 ppm 1.00 to 10.00 ppt 10.0 to 100.00 ppt	.. to 9.99 ppm ** 10.0 to 99.9 ppm 100 to 999 ppm 1.00 to 9.99 ppt 10.0 to 99.9 ppt		–	.. to 9.99 ppm ** 10.0 to 99.9 ppm 100 to 999 ppm 1.00 to 9.99 ppt 10.0 to 99.9 ppt	
	Resolution	0.01 ppm / 0.1 ppm / 0.001 ppt / 0.01 ppt / 0.1 ppt		0.05 % full scale	0.05 % full scale				
	Accuracy	±1 % full scale + 1 LSD			±1 % full scale + 1 LSD				
	TDS Factor	0.40 to 1.00		0.40 to 1.0	0.40 to 1.0		–	0.40 to 1.0	
Salinity	Range	.. to 0.770 ppm 0.770 to 143.3 ppm 143.3 ppm to 2.138 ppt 2.138 to 23.64 ppt 23.64 to 80.00 ppt	–						1.0 to 50.0 ppt / 0.1 to 5.00 %
	Resolution	0.01 ppm / 0.1 ppm / 0.001 ppt / 0.01 ppt	–						0.1 ppt / 0.01 %
	Accuracy	±1 % full scale + 1 LSD	–						±1 % full scale
Resistivity	Range	2.000 to 25.00 Ω 25.00 to 250.0 Ω 250.0 to 3.333 kΩ 3.333 to 500.0 kΩ 500.0 kΩ to 20.00 MΩ	–						
	Resolution	0.01 Ω / 0.1 Ω / 0.001 Ω / 0.1 Ω / 0.01 MΩ	–						
	Accuracy	1 % full scale + 1 LSD	–						
Cal. Points		4 (1 per range) auto, 5 (1 per range) manual		5 (1 per range) manual	4 (1 per range) auto, 5 (1 per range) manual			5 (1 per range) manual	
Temperature	Range	-10.0 to 110 °C / 14.0 to 230 °F		0.0 to 100.0 °C / 32.0 to 212 °F					-10.0 to 110 °C
	Resolution	0.1 °C / 0.1 °F							0.1 °C
	Accuracy	±0.5 °C / ±0.9 °F							±0.5 °C
	Compensation	ATC / MTC (0 to 80 °C)							ATC / MTC (0 to 50 °C)
	Normalization	15 to 30 °C			20.0 or 25.0 °C				20.0 °C & 25.0 °C (selectable)
	Operating Temp.	0 to 50 °C							0 to 50 °C
Meter Features	Temperature Coefficient	Linear & pure	Linear	0.0 to 10.0 %			0.0 to 3.0 %		0.0 to 3.0 %
	GLP	Yes			–				
	Cal-Due Alarm	Yes		–					
	IP67	Yes		–					
	Datalogging	Yes		–					Yes
	Memory	500 data sets		50 data sets	100 data sets	50 data sets	–		
	Cell Constant	0.010 to 10.000		0.1, 1.0, 10.0					
	LCD Display	Dot-matrix LCD with backlight (5.4 x 7.1 cm)		Dual-display LCD (5.8 x 3.3 cm)			Single-display LCD (4.5 x 2.3 cm)		
	Auto-Off	2 to 30 mins after last key pressed		20 mins after last key pressed					
	Auto Hold	Yes				–			
	Input	DC phono sockets, 8-pin connector		6-pin connector	DC socket, 6-pin connector		BNC, 2.5 mm phono socket		
	Output	IrDA, RS232C (via LED) *		–	RS232C	–			
	Power	4 x 1.5 V 'AA' alkaline batteries or 9 V DC adapter, 500 mA		4 x 1.5 V 'AAA' alkaline batteries	4 x 1.5 V 'AAA' alkaline batteries or 9 V DC adapter, 200 mA		4 x 1.5 V 'AAA' alkaline batteries		
	Battery Life	> 200 hrs		> 100 hrs	> 200 hrs		> 100 hrs		
Dimensions (LxWxH); Weight	Meter	18.3 x 9.5 x 5.7 cm ; 460 g		19 x 10 x 6 cm ; 320 g	18 x 9 x 4 cm ; 220 g		15.7 x 8.5 x 4.2 cm ; 255 g		
	Boxed	40 x 33 x 10 cm ; 2680 g		40 x 33 x 10 cm ; 2100 g			36 x 28 x 8 cm ; 1555 g		

*• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: miliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand) ** Maximum 199.9 ppt depending on factor setting*
** RS232C (LED) interface adapter available as separate accessory (see page 49 for order information)*

Conductivity/TDS/Salinity Handheld Meters

Item	Order Code	Part No.	Parameters					Electrodes			Accessories						
			Conductivity	TDS	Salinity	Resistivity	Temperature	4-Cell Conductivity Electrode (CONSEN9203J)	Conductivity Electrode (CONSEN91W)	Conductivity Electrode (CONSEN91B)	CyberComm 600 DAS Software	CyberComm Portable DAS Software	Electrode Holder	RS232C Cable	Power Adapter	CyberScan Carry Kit Set With Calibration Stds	Economy Carry Kit Set With Calibration Stds
COND 610	ECCONWP61043K	01X418307	•	•	•	•	•	•			•				•	•	
COND 600	ECCONWP60043K	01X418304	•	•			•	•			•				•	•	
CON 400	ECCONWP40003K	01X251410	•	•			•		•				•			•	
CON 110	ECCON11003K	01X366309	•	•			•		•			•	•	•		•	
CON 11	ECCON1103K	01X366305	•	•			•		•				•			•	
COND 6+	ECCON603PLUSK	01X289425	•				•			•							•
TDS 6+	ECTDS603PLUSK	01X289427		•			•			•							•
Salt 6+	ECSALT603PLUSK	01X289429			•		•			•							•*

** Economy Salinity carry kit set – plastic carry case, 5 ppt, 25 ppt, 45 ppt NaCl standard solutions, deionised rinse water*

Replacement Electrodes

Used With	Description	Order Code	Part No.
COND 610 / COND 600	4-cell epoxy body Conductivity electrode, ATC, cell constant K=1.0, 12 x 120 mm, 8-pin connector, 3 m cable	CONSEN9203J	01X244723
COND 610 / COND 600	2 stainless steel rings ultem-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, 8-pin connector, 1 m cable	CONSEN91J	01X244721
CON 400 / CON 110 / CON 11	2 stainless steel rings ultem-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, 6-pin connector, 1 m cable	CONSEN91W	01X244702
COND 6+ / TDS 6+ / Salt 6+	2-stainless steel rings ultem-body Conductivity electrode , ATC, cell constant K=1.0, 16 x 144 mm, BNC connector, 1 m cable	CONSEN91B	01X244701

Accessories

Used With	Description	Order Code	Part No.
COND 610 / COND 600	CyberScan CON 600 series carry kit set – plastic carry case, 442 standard solutions (1413 mS, 12.88 mS KCl, 3000 ppm), deionised rinse water	ECCONWP600KIT	01X430202
COND 610 / COND 600	100 / 240 VAC SMPS power adapter, 9 V, 6 W, centre +ve, US / UK / EUR / Japan plug	01X030132	01X030132
COND 610 / COND 600	RS232C (LED) interface adapter	91100-85	01X344202
CON 400 / CON 110 / CON 11	CyberScan Conductivity / TDS carry kit set – plastic carry case, 442 standard solutions (1413 mS, 12.88 mS KCl, 3000 ppm), deionised rinse water	ECCONWPKIT	01X266802
CON 110 / CON 11	100 / 240 VAC SMPS power adapter, 9 V, 6 W, centre +ve, US / UK / EUR / Japan plug	60X030130	60X030130
CON 110	RS232C communication cable – 9-pin male to 9-pin female connector, 1 m cable	ECCA02M09F09	30X219503
COND 6+ / TDS 6+	Economy Conductivity / TDS carry kit set – plastic carry case, 442 standard solutions (1413 mS, 12.88 mS KCl, 3000 ppm), deionised rinse water	ECECOCONKIT	01X266902
12 mm diameter electrode	Electrode holder	15X000700	15X000700
All except 600 series	CyberScan handheld carry pouch	ECPOUCH02	56X201400

CyberScan CON 6000

Conductivity/TDS/Salinity/Resistivity/ºC/ºF

Send data to any computer in the world directly from your meter! Eutech's CyberScan 6000 Series is the world's first Windows CE-driven touchscreen meter series with internet/ethernet-ready connection. With its comprehensive communications capabilities, you can choose to send data in any format – via the USB port, wirelessly using IrDA, or email via the internet. Ideal for comprehensive pharmaceutical researches, forensic analysis and other advanced lab work.

Application software with technical controls for 21 CFR Part 11

(software sold separately)

Multiple communications capabilities

World's first Windows® CE-driven colour touchscreen bench meter

- Single-point and multi-point standardisation for Conductivity, Resistivity, TDS and Salinity measurements using 2-cell and 4-cell probes
- Advanced real-time on-screen graphing function provides useful indication for specific measurements
- Extensive setup screens enable you to customise meter to your needs, e.g. cell constant, temperature coefficient, TDS factor, alarm limits and other functions
- Windows® CE-driven, full-color touchscreen provides unmatched ease of use in operations and setups with user-friendly icons, user prompts and context specific 'help' screens
- Advanced USB, IrDA connectivity allows extensive host/device communication capabilities
- Secure log-in for up to ten users

ATC | MTC | GLP | AUTO-CAL | IrDA | USB | 3 Year Meter Warranty | CE

1 year warranty for touchscreen display; 3 years warranty for all other meter components.

Applications

• Pharmaceutical manufacturing • Research and lab course work • Forensic analysis • Life sciences and medical researches • Environmental testing labs • Wastewater and drinking water facilities • Food processing and beverage production

CON 2700

Conductivity/TDS/Salinity/Resistivity/ºC/ºF

Featuring auto-standardization, auto-calibration and auto-ranging capabilities, the Eutech CON 2700 accepts 2-cell and 4-cell electrodes, allowing a broad range of measurement at up to ±1 % full scale accuracy. Meter comes with a multi-data screen that shows Conductivity readings, temperature, electrode status, calibration points, date and time all at once.

Stability display – faded out and then turns completely black when stable

Large informative display

Download the latest software from our website Coming soon!

Non-skid foot pads

- Choose auto-calibration with preset values for quick easy calibration, or manual multi-point calibration for greater accuracy
- Easy standardization with auto-standardization feature – detect the exact cell constant value of your electrodes with the press of a button
- Quick, easy electrode diagnosis with the effective cell constants display
- Replatinization in 5 minutes with the built-in replanitization circuit
- Non-volatile memory holds up to 500 data points – time and date-stamped for GLP compliance
- Bi-directional RS232 for easy data transfer to computer
- Cal-due alarm – no more out-dated calibrations!
- Auto-logging function for convenient continuous monitoring
- Limit alarm alerts when reading falls out of range
- Password protection for setup and calibration

Electrode arm and bracket available as separate accessory (order code: 01X321801) – please refer to page 111

ATC MTC GLP AUTO-CAL RS232 3 Year Warranty CE

Applications

• Environmental studies • Chemical laboratories • Quality assurance testing • Food science • Ecological studies • Education institution

CON 700

Conductivity/TDS/ºC/ºF

The economy Eutech CON 700 offers years of reliable, accurate and consistent performance. User-friendly features make the instrument an ideal research partner in laboratories, productions plants and schools.

Larger display

Electrode arm can be used on either side

Splashproof keypad

Non-skid foot pads

- Large, comprehensive screen that displays readings, calibration points and electrode indicator
- Ready indicator alerts when readings are stable
- Selectable cell constant
- Auto-ranging across 5 conductivity ranges
- Up to 5-point push button calibration
- Non-volatile memory holds up to 100 data points
- Integral electrode holder

Electrode arm and bracket available as separate accessory (order code: 01X321801) – please refer to page 111

Applications

• Environmental studies • Chemical laboratories • Quality assurance testing • Food science • Ecological studies • Education institution

Model		CyberScan Premium Bench	Deluxe Bench	Economy Bench
		CON 6000	CON 2700	CON 700
Conductivity/ TDS/Salinity Bench Meters Specifications				
Measuring Parameter		Conductivity / TDS / Salinity / Resistivity / °C / °F	Conductivity / TDS / Salinity / Resistivity / °C / °F	Conductivity / TDS / °C / °F
Highlights		Windows® CE, single-channel color touchscreen	Graphic LCD with backlight & extensive display	Large LCD with dual display
Conductivity	Range	.. to 200.0 µS 200.0 µS to 2.000 mS 2.000 to 20.00 mS 20.00 to 500.0 mS	0.050 µS to 500.0 mS	.. µS to 200.0 mS
	Resolution	0.001 / 0.01 / 0.1 µS 0.001 / 0.01 / 0.1 mS	0.01 / 0.1 µS 0.001 / 0.01 / 0.1 mS	0.01 / 0.1 / 1 µS 0.01 / 0.1 mS
	Accuracy	±0.5 % full scale + 1 digit	±1 % full scale	±1 % full scale
	Cal. Points	4 auto, 4 manual	Up to 5	
TDS	Range (Depending On TDS Factor)	.. to 200.0 ppm 200.0 to 2000 ppm 2.000 to 20.00 ppt 20.00 to 500.0 ppt Depending on TDS factor	0.050 ppm to 500 ppt (@ TDS factor 1.00)	.. to 100.0 ppt @ 0.5 fact (200.0 @ 1 factor)
	Resolution	0.001 / 0.01 / 0.1 ppm, 0.001 / 0.01 / 0.1 ppt	0.01 / 0.1 ppm 0.001 / 0.01 / 0.1 ppt	0.01 / 0.1 / 1 ppm 0.01 / 0.1 ppt
	Accuracy	±0.5 % full scale + 1 digit	±1 % full scale	±1 % full scale
	Cal. Points	4 auto, 4 manual	Up to 5	
Salinity	Range	0 to 90 ppt over 4 ranges	0 to 80.0 ppt	–
	Resolution	0.1 / 0.01 / 0.001 ppt	0.01 / 0.1 ppm 0.001 / 0.01 / 0.1 ppt	–
	Accuracy	±0.5 % full scale + 1 digit	±1 % full scale	–
	Cal. Points	4 auto, 4 manual	Up to 5	–
Resistivity	Range	0 to 19.99 kΩ 20.00 to 199.9 kΩ 200.0 kΩ to 1.999 MΩ 2.000 to 100.0 MΩ	2.000 Ω to 20.0 MΩ	–
	Resolution	0.1 / 0.01 / 0.001 kΩ, 0.01 / 0.001 MΩ	0.01 / 0.1 Ω, 0.001 / 0.1 kΩ, 0.01 MΩ	–
	Accuracy	±0.5 % full scale + 1 digit	±1 % full scale	–
	Cal. Points	4 auto, 4 manual	Up to 5	–
Temperature	Range (Meter)	-5.0 to 105.0 °C / 23.0 to 221.0 °F	0.0 to 100.0 °C / 32.0 to 212.0 °F	
	Resolution	0.1 °C / 0.1 °F		
	Accuracy	±0.2 °C / ±0.3 °F	±0.3 °C / ±0.5 °F	±0.5 °C / ±0.9 °F
	Coefficient (Per °C)	0.000 to 10.000 %	Linear & pure ; 0.000 to 10.000 %	0.00 to 10.00 %
	Normalization	15.0 to 30.0 °C / 59.0 to 86.0 °F		
Meter Features	Temperature Compensation	ATC / MTC (-5 to 100 °C) (meter)	ATC / MTC	
	GLP	Yes		–
	Cell Constant	0.1 / 1.0 / 10.0	0.010 to 10.000	0.1 / 1.0 / 10.0
	Datalogging	Yes		–
	Memory	Up to 1000 data sets per parameter	500 data sets	100 data sets
	Operating Temperature	5 to 45 °C / 41 to 113 °F		
	LCD Display	Windows® CE colour touchscreen (11.43 x 15.24 cm)	Graphic LCD with backlight (5.9 x 7.8 cm)	Custom dual-display LCD (5.6 x 7.5 cm)
	Input	DC socket, DIN, SD card, USB-A, USB-B, RJ45, audio	DC socket, 8-pin DIN (2-cell or 4-cell), RS232	DC socket, 8-pin DIN (2-cell)
	Output	USB, IrDA, RS232C	RS232	–
	Power	9 V DC adapter, 3.3 A (100 / 240 VAC, SMPS)	9 V DC adapter, 1.3 A (100 / 240 VAC, SMPS)	
Dimensions (LxWxH); Weight	Meter	16.5 x 23.5 x 8.9 cm ; 1100 g	17.5 x 15.5 x 6.9 cm ; 650 g	
	Boxed	49 x 28 x 16 cm ; 3330 g	30.8 x 23.5 x 12.4 cm ; 1800 g	

• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: miliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand)

Conductivity/TDS/Salinity Bench Meters

Item	Order Code	Part No.	Parameters					Electrodes				Accessories				
			Conductivity	TDS	Salinity	Resistivity	Temperature	4-Cell Conductivity Electrode (EC620165)	4-Cell Conductivity Electrode (CONSEN9201D)	2-Cell Conductivity Electrode (CONSEN9501D)	CyberComm 6000 DAS Software	Integral Electrode Holder	RS232C Cable	Power Adapter	Calibration Sachets
CON 6000	ECCON600043SC	01X373811	•	•	•	•	•	•			•	•	•	•	•
CON 6000	ECCON600043S	01X373805	•	•	•	•	•	•				•		•	•
CON 2700	ECCON270043S	01X543905	•	•	•	•	•		•			•	•	•	
CON 700	ECCON70043S	01X543401	•	•			•			•		•		•	

Replacement Electrodes

Used With	Description	Order Code	Part No.
CON 6000	4-cell epoxy-body Conductivity electrode, ATC, cell constant K=1.0, DIN connector, 1 m cable	EC620165	93X219046
CON 2700	4-cell, epoxy-body, graphite sensor, "Bulls Eye" Conductivity electrode, ATC, cell constant=1.0, 12 x 120 mm, 8-pin DIN connector, 1 m cable	CONSEN9201D	01X244730
CON 700	2 stainless steel rings ultem-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, 8-pin connector, 1 m cable	CONSEN9501D	01X466601

Accessories

Used With	Description	Order Code	Part No.
CON 6000	RS232C communication cable – 9-pin male to 9-pin female connector, 1 m cable	ECCA02M09F09	30X219503
CON 2700	RS232 to USB cable – use with 30X427301 cable to connect 2700 to USB port of PC	30X544601	30X544601
CON 6000	CyberComm 6000 (21 CFR Part 11 compliant CyberScan 6000 series application software)	ECDAS6000	01X415501
CON 6000	100 / 240 VAC SMPS power adapter, 9 V, 3.3 A, centre -ve with 2-pin power cord	60X030128	60X030128
CON 2700	100 / 240 VAC SMPS power adapter, 9 V, 6 W	60X426401	60X426401
CON 700	100 / 240 VAC SMPS power adapter, 9 V, 6 W	60X030130	60X030130
CON 6000	Secure Digital (SD) memory card, 256 MB, Sandisk	01X419901	01X419901

<< Water Analysing

<< Cooling Tower Water

>> School Laboratories

>> Recirculating Systems